

## **REMARKS/ARGUMENTS**

### ***Status of the Application***

In the September 13, 2007, Non-Final Office Action, claims 21-24 and 27 were rejected. In the present response, no amendments to the claims were made.

### ***Withdrawn Rejections***

Applicants gratefully acknowledge the examiner's withdrawal of the previous rejections traversed in the papers filed 8/2/07.

### ***Rejections Under 35 U.S.C. § 103***

Claims 21-24 and 27 were rejected under 35 U.S.C. § 103(a) as being obvious over Buzaneva *et al.* (Mater. Sci. Eng. C 19:41-45 (2002)) in view of Yerushalmirozen *et al.* (WO 02/076888). Applicants respectfully traverse these rejections.

The Examiner finds that Buzaneva teach all the elements of the claimed invention with the exception of a dispersion of DNA nanotubes, an element the examiner argues is supplied by Yerushalmirozen, thus rendering the present invention obvious. Applicants respectfully traverse.

Applicants submit the Examiner's current rejections suggest a misunderstanding as to the meaning of "dispersion". As noted in the August 28, 2007, Response to Office Action, the common definition for dispersion is "a stable or unstable system of fine particles, evenly distributed in a medium" (<http://en.wikipedia.org/wiki/Dispersion>). Dispersion is not the same as "mixture", which is what Buzaneva *et al.* describes (see page 42, lines 14-16, of Buzaneva *et al.*, where it is stated that "[s]ingle droplets of the upper layer of this mixture . . . were deposited . . ."). The Buzaneva *et al.* authors call it a mixture, and they do not state that they produced a CNT dispersion. Further, the very act of taking a droplet from the upper layer implies that the mixture is not evenly distributed. Thus, Buzaneva *et al.* itself contradicts the Examiner's conclusion that "Buzaneva et al disclose a complex comprising unfunctionalized carbon nanotubes and single stranded nucleic acid (i.e. unwrapped double helix) wherein the complex is dispersed in solution prior to droplet deposition . . . ."

As also noted in the August 28, 2007, Response to Office Action, it is well documented in the literature that dispersed SWNTs show characteristic, resolved optical spectra peaks (see Figure 2C of Fukushima *et al.*, Science 300:2072-74 (2003)). In Figure 3 of Buzaneva *et al.*, optical absorption spectra were shown for films made from SWNT along and from the DNA/SWNT mixture. Both spectra lack the resolved peaks that are typically seen for films from well-dispersed SWNTs. Films made by Applicants' DNA-CNT dispersion, however, show similar resolved features to that of Fukushima *et al.* (see Figure 3A of Applicants' specification).

With the benefit of hindsight, the skilled artisan might or might not be able to obtain DNA-dispersed carbon nanotubes by applying the nanotube dispersion of Yerushalmirozen *et al.* to the DNA/NaOH complexes of Buzaneva *et al.*, as suggested by the Examiner. There is no reasonable expectation of success because the obtainment of DNA-dispersed carbon nanotubes is dependent on how much DNA is used relative to the dispersant polymer used in Yerushalmirozen *et al.* Buzaneva *et al.*, however, does not disclose how strong the DNA-SWNT interaction is. Further, Yerushalmirozen *et al.* is unable to supply the missing element of dispersion of DNA nanotubes as Yerushalmirozen does not mention nucleic acids anywhere; only polysaccharides and polypeptides are disclosed (see page 6, lines 7-8, of Yerushalmirozen *et al.*). Thus, Applicants respectfully submit that it is not obvious how to obtain DNA-dispersed carbon nanotubes in light of Buzaneva *et al.* in combination with Yerushalmirozen *et al.* Withdrawal of the section 103 rejections are thus respectfully requested.

### **Summary**

In view of the foregoing amendments and remarks, Applicants submit that this application is in condition for allowance. In order to expedite disposition of this case, the Examiner is invited to contact Applicants' representative at the telephone number below to resolve any remaining issues. Should there be a fee due which is not accounted for, please charge such fee to Deposit Account No. 04-1928 (E.I. du Pont de Nemours and Company).

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Respectfully submitted,

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